

G. W. WALKER.
Hot-Air Furnaces.

No.149,422.

Patented April 7, 1874.

Fig. 1.

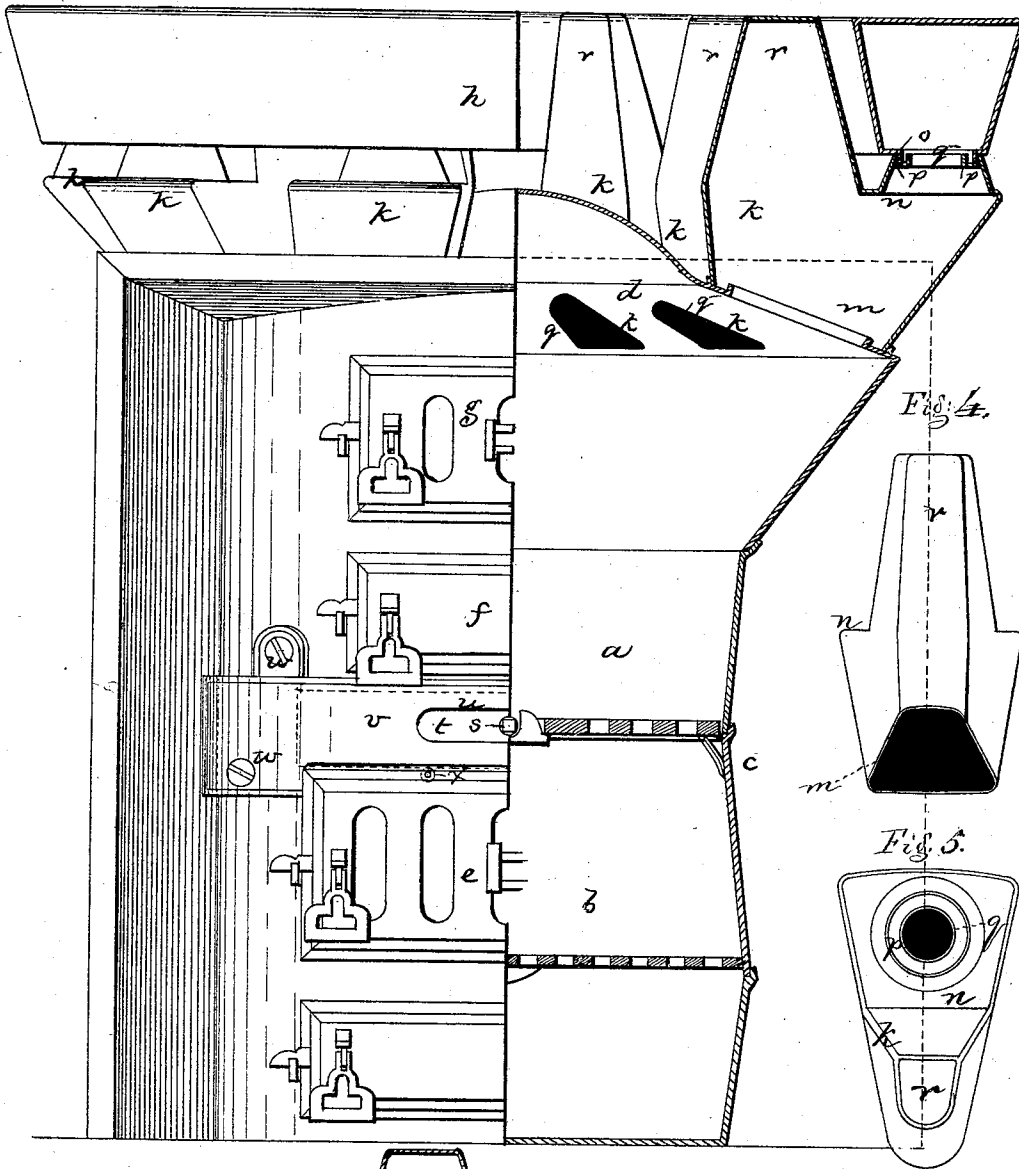


Fig. 4.

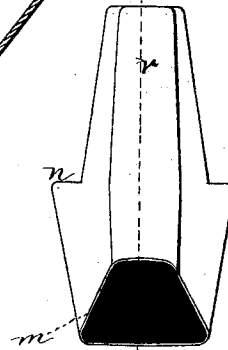


Fig. 5.

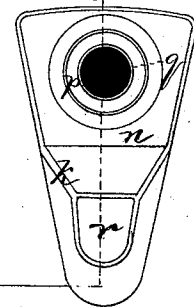
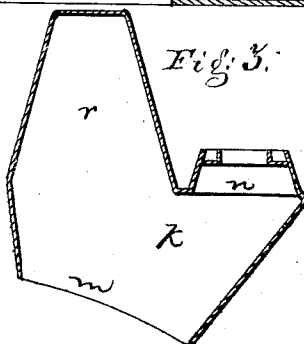


Fig. 3.



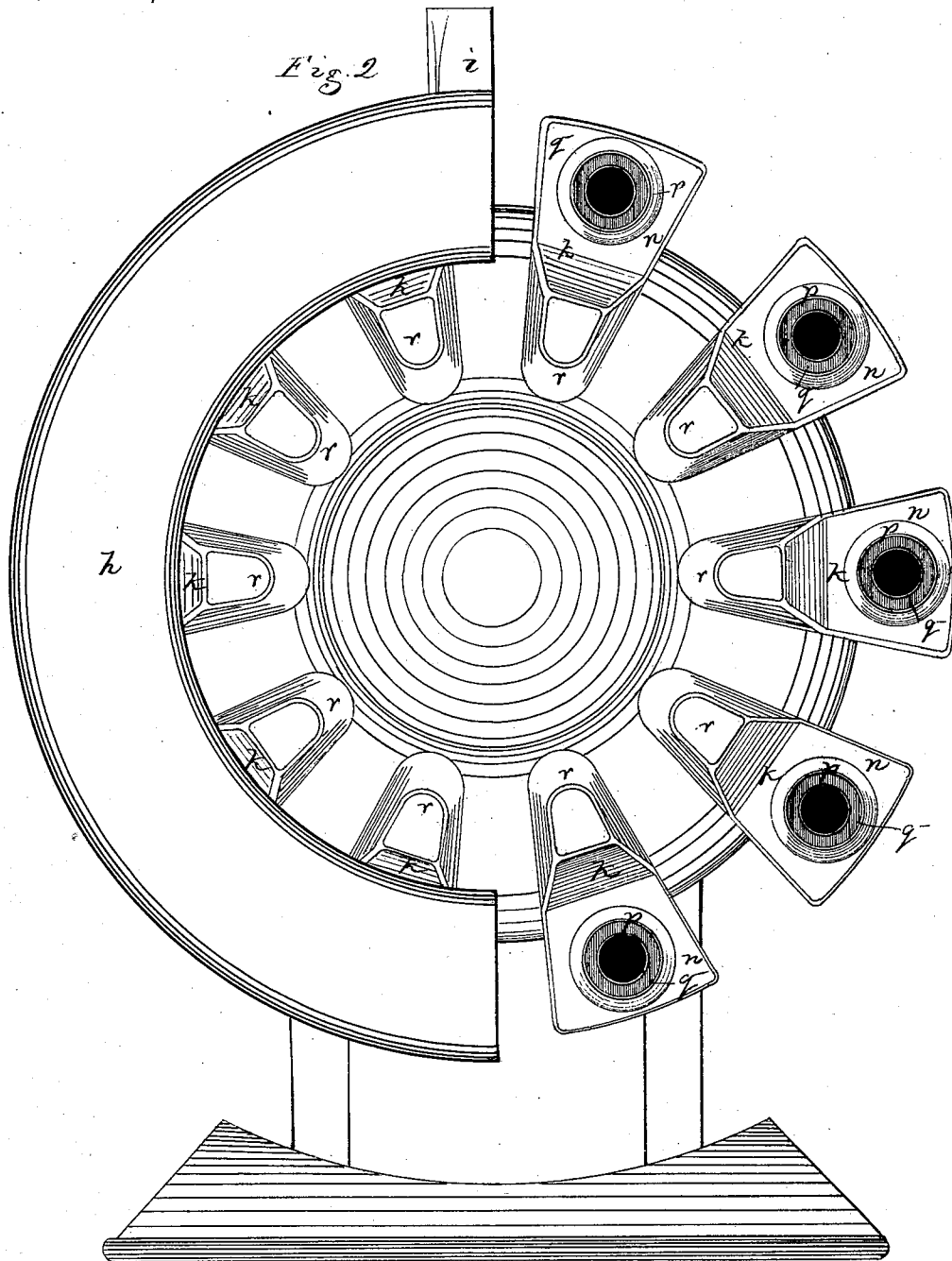
Witnesses,
M. W. Frothingham,
L. H. Latimer,

Inventor
George W. Walker
By his Attys.
Crosby & Gould

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UNITED STATES PATENT OFFICE.

GEORGE W. WALKER, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN HOT-AIR FURNACES.

Specification forming part of Letters Patent No. **149,422**, dated April 7, 1874; application filed December 6, 1873.

To all whom it may concern:

Be it known that I, GEORGE W. WALKER, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain Improvements in Hot-Air Furnaces; and I do hereby declare that the following, taken in connection with the drawings which accompany and form part of this specification, is a description of my invention sufficient to enable those skilled in the art to practice it.

The invention relates particularly to the construction of the upper part of the furnace with reference to increasing the extent of radiating-surface without increasing the height of the furnace. For this purpose I extend from the dome of the furnace an annular series of peculiarly-shaped hollow protuberances, opening at bottom from the main combustion-chamber, and having each a shoulder or offset, upon which is supported the hollow ring or annular chamber that leads to the flue, each chamber opening into the ring, having back of the shoulder a chambered tip that extends upward inside of the ring; and being entirely within the ring, or so as to expose the whole surface of each, these tips increase the radiating-surface by the extent of their aggregated surfaces. The invention consists primarily in the combination, with the dome and ring, of these auxiliary chambers or tips extending up within the ring.

The drawing represents a construction embodying my improvements.

Figure 1 shows the furnace half in front elevation and half in vertical central section. Fig. 2 is a plan of the furnace. Fig. 3 shows one of the dome-tips in section. Fig. 4 is a front view, and Fig. 5 a plan, of the same.

a denotes the fire-pot and combustion-chamber; *b*, the ash-pit; *c*, the hot-air space around the furnace; *d*, the dome. *e* denotes the ash-pit door; *f*, the air-chamber door; *g*, the fire-pot door. Over the dome is the radiator-ring *h*, into the annular chamber formed by which the volatile products of combustion are led from the dome *d*, such products passing through the ring into the flue-pipe *i*. The connection between the dome and ring is made

through an annular series of hollow pipes or connectors, *k*, each of which has a large open base, *m*, resting on the dome, and communicating directly with the dome-chamber, and a shoulder, *n*, upon which the ring is supported, flanges or tubular extensions *o* of the ring standing in circular grooves formed by two extensions, *p*, from each shoulder *n*, and the products of combustion passing through the connecting passages *q*. Over the same base, and inside of the shoulder *n* of each pipe or connector *k*, a hollow arm or tip, *r*, extends up from the pipe, and these arms or tips constitute the pockets that, receiving part of the products of combustion, increase the heating or heat-radiating surface, the arms extending up within the space inclosed by the ring *h*, and forming an annular series of radiators, whose surfaces on all sides radiate their heat to the air passing through the air-chamber surrounding the furnace, the hot volatile products of combustion passing from the dome into the ring; also, by the current passing into these pockets, keeping them at all times equally warm with the ring.

It will be seen that by the disposition of these tips, they greatly increase the radiating-surface, but do not increase the height of the furnace.

The shaft or front gudgeon of the grate is shown at *s*, the slide in which it is journaled at *t*, the gudgeon extending through a slot, *u*, in a plate, *v*. The latter is a cap-plate, and fastened by screws *w*. Trucks or rolls *x* support the slide.

As the grate-connections are to form the subject of a separate patent, no claim is herein made thereto.

I claim—

In combination with the dome *d* and ring *h*, the pipes or connectors *k*, having the upwardly-extending tips *r*, encompassed by the ring *h*, substantially as shown and described.

GEO. W. WALKER.

Witnesses:

FRANCIS GOULD,
M. W. FROTHINGHAM.